

Effect of lithological heterogeneity of bitumen sandstones on SAGD reservoir development

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Abstract

© 2018 Institute of Physics Publishing. All rights reserved. The article describes the heavy oil field developed by the SAGD method. While development planning all the heterogeneity of the reservoir is must be taken into account. The objective of this work is to identify the distribution of lithological heterogeneities and their influence on oil production. For this reason, the studies of core samples were conducted and the heterogeneity was identified. Then properties and approximate geometry of lithological objects were studied. Also the effect of the heterogeneity on the heat propagation and production of fluid were analyzed. In the end, recommendations were made for the study of such heterogeneities on other deposits with similar geology.

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References

- [1] Danilova Ye.A. 2008 Heavy Oil in Russia The Chemical Journal. 34-37
- [2] Sudakov V. Technology of Integrated Monitoring of Steam Chamber Evolution During the Oil Production from the Shallow Deposits of Super-Viscous Oil Paper SPE-182000-MS presented at the SPE Russian Petroleum Technology Conference and Exhibition (Moscow, Russia, 24-26 October 2016) ed V. Sudakov, D. Nurgaliev, D. Khasanov, A. Stepanov, G. Khamidullina, V. Kosarev, A. Galukhin, S. Usmanov, A. Zaripov and M. Amerkhanov <http://dx.doi.org/10.2118/182000-MS>
- [3] Makarevich V.N., Iskritskaya N.I. and Bogoslovsky S.A. 2012 Resource Potential of Heavy Oil Reservoirs in the European Russia Neftegazovaya Geologiya. Teoriya i praktika 7 27-32
- [4] Burov B.V. 2003 Geology of Tatarstan. Stratigraphy and Tectonics - M.: GEOS 402
- [5] Petrov G.A. 2000 Lithological and Facial Analysis of the Upper Permian Bitumen Reservoirs Related to the Assessment of Bitumen Resources Within Tatarstan: Author's abstract (Kazan) 27 Thesis Work by Candidate of Geological and Mineralogical Sciences
- [6] Khasanov R.R., Mullakaev A.I. and Dusmanov E.N. 2017 The structure of sandstones in productive horizons of the Permian bituminous deposits of Tatarstan (Russia) Uchenye Zapiski Kazanskogo Universiteta. Seriya Estestvennye Nauki 159 164-173
- [7] Mullakaev A.I., Delev A.N., Usmanov S.A., Sudakov V.A. and Khasanov R.R. 2018 Tectonic causes of uneven cementation zones distribution in the bituminous sandstones productive part of the Sheshmian horizon of the South Tatar arch Neftyanoe Khozyaystvo - Oil Industry 23-25
- [8] Zakirov T.R., Galeev A.A., Korolev E.A., Nuriyev I.S. and Statsenko E.O. 2015 Estimation of sandstone reservoir properties using X-ray CT studies in Ashalchinskoye oil field Neftyanoe Khozyaystvo - Oil Industry 8 36-40
- [9] Nikolaev D.S. 2017 West Siberian Petroleum Congress: a collection of scientific papers of the XI International Scientific and Technical Congress of the Student Department of the Petroleum Engineer Society ed S.I. Grachyov (Tyumen: TIU) Studying the Geological Features of the Primary Pay Zones of Heavy Oil Reservoirs in Tatarstan 169 ISBN: 978-5-9961-1461-0 TIU.
- [10] Butler R.M. 1994 Horizontal Wells or the Recovery of Oil, Gas and Bitumen Petroleum Society Monograph